

Applicants : Christopher D. Ruppel et al.  
Appln. No. : 09/911,087  
Page : 3

### **REMARKS**

In the present Office Action, claims 1, 10 and 23 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0087271 (hereinafter Chang); claims 2-5, 8, 9, 11-14, 17-19, 21, 22 and 24-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chang in view of U.S. Patent Application Publication No. 2004/0039509 (hereinafter Breed); claims 6, 7, 15 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chang in view U.S. Patent No. 4,416,024 (hereinafter Ugari); and claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Chang in view of Breed and in further view of Ugari.

Applicants have submitted herewith corrected versions of Figs. 2 and 3 that correct printing errors that were present in the originally submitted Figs. 2 and 3.

Applicants believe that a brief overview of an exemplary embodiment that is covered by Applicants' claimed subject matter may help to move this case toward allowance. With reference to Applicants' Fig. 3, an exemplary electrical block diagram of a signal quality circuit 106B that allows time constants to be dynamically modified is illustrated. As is disclosed, an I<sup>2</sup>C control block 110 is coupled to a plurality of switches, e.g., field-effect transistors, 302-312, which allow time constants associated with detectors 210-220 to be dynamically altered. Based upon a vehicle speed, a processor 108 (see Figs. 1 and 4) provides an I<sup>2</sup>C control signal on a signal line 107 to the I<sup>2</sup>C control block 110, which causes one or more of the switches 302-312 to close or open. Closing one of the switches 302-312 causes one of the capacitors C11-C16 to be added in parallel with one of the existing capacitors C1-C6, respectively. This, in turn, causes one or more of the attack and decay time constants associated with the detectors 210-220 to increase. As is disclosed, this is implemented to adjust the time constants responsive to the speed of the vehicle. As is also disclosed, the capacitors C1-C6 may be removed and the capacitors C11-C16 and switches 302-312 may be

Applicants : Christopher D. Ruppel et al.  
Appln. No. : 09/911,087  
Page : 4

replaced with analog circuitry, whose capacitance can be continuously varied to modify associated attack and decay times.

With respect to the rejection of claims 1, 10 and 23 as being anticipated by Chang, Applicants respectfully submit that in order for a reference to anticipate a claim, the reference must teach each and every claim limitation. At the outset, Applicants note that Chang is primarily directed to an antenna terminal that is suitable for mobile applications (see paragraph 0032). More specifically, at paragraph 0045, Chang discloses a receive circuit 60 that combines signals from a plurality of receiving elements 64 to form a beam (see Fig. 6).

Applicants note that at paragraph 0043, Chang states “the digital signal processing may also mitigate any distortion due to motion of automotive vehicle 14.” However, Applicants submit that this does not teach or suggest modifying at least one time constant associated with processing of collected signal information, which provides an indication of the quality of a received signal, responsive to a determined speed. Applicants also note that step 206 of Fig. 15 specifically refers to a time adjuster/detection filter that is used to correct small changes in timing  $\Delta t$  between signals that are received by the different elements. Applicants further note that paragraph 0079 of Chang states that “[t]he use of velocity and orientation information allows the use of large tracking/loop time constants (small loop bandwidth) to minimize jitter and reduce the effects of fading during vehicle operation.” However, the time correction loop is responsible for symbol synchronization and allows for computation of data and discrimination and adjustment of the sample time of the subarray detection filters, which allows the time correction loop to control timing to within plus or minus 1/20 of the symbol.

In sum, Chang is not directed to a receiver that includes a signal quality circuit that provides signal information that indicates the quality of a received signal. Further, Chang does not teach or suggest modifying at least one time constant associated with the processing of the collected signal information responsive to a determined speed. In

Applicants : Christopher D. Ruppel et al.  
Appln. No. : 09/911,087  
Page : 5

sum, Chang merely discloses that the use of velocity and orientation information allows for the use of a large tracking/loop time constant, which minimizes jitter and reduces the effects of fading during operation. This implies that if the vehicle is not moving, less frequent tracking is needed.

With respect to the rejection of independent claim 19 as being unpatentable over Chang in view of Breed, Applicants submit that neither Chang nor Breed, or the combination thereof, teaches or suggests a signal quality circuit that is coupled to a tuner module. More specifically, Chang item 150 is a subarray RF/base band processing circuit that includes a plurality of comparators 168 that each receive a signal from an amplifier 166, which each receive a different signal from a different element of receive element 164. Applicants further note that Change item 156 is a digital processing circuit for the antenna array that includes a loop filters buffer 184 that receives velocity information from an external circuit 160. This information is used by the time adjust detection filter 178 to adjust the timing of the signals received by the elements of the antenna array, such that the signals are coherent. As is discussed above, with respect to claims 1, 10 and 23, this does not teach or suggest a signal quality circuit that provides collected signal information on a selected signal and modifying at least one time constant associated with the processing of the collected signal information responsive to a determined speed.

Applicants submit that for at least the foregoing reasons, independent claims 1, 10, 19 and 23 are allowable. Applicants also submit that claims 2-9, 11-18, 20-22 and 24-26 depend upon allowable claims and are also allowable for at least this reason.

Applicants respectfully submit that this reply is fully responsive to the above-referenced Office Action.

Applicants : Christopher D. Ruppel et al.  
Appln. No. : 09/911,087  
Page : 6

**CONCLUSION**

For all of the foregoing reasons, Applicants respectfully submit that claims 1-26 are allowable. If the Examiner has any questions or comments with respect to this reply, the Examiner is invited to contact the undersigned at (616) 949-9610.

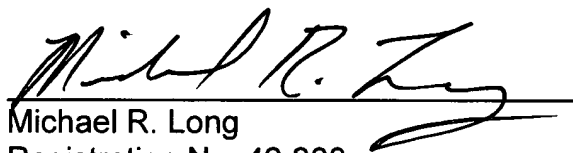
Respectfully submitted,

CHRISTOPHER D. RUPPEL ET AL.

By: PRICE, HENEVELD, COOPER,  
DEWITT & LITTON, LLP

09-09-04

Date



Michael R. Long

Registration No. 42 808

695 Kenmoor SE

P.O. Box 2567

Grand Rapids, Michigan 49501-2567

616/949-9610

MRL/saw

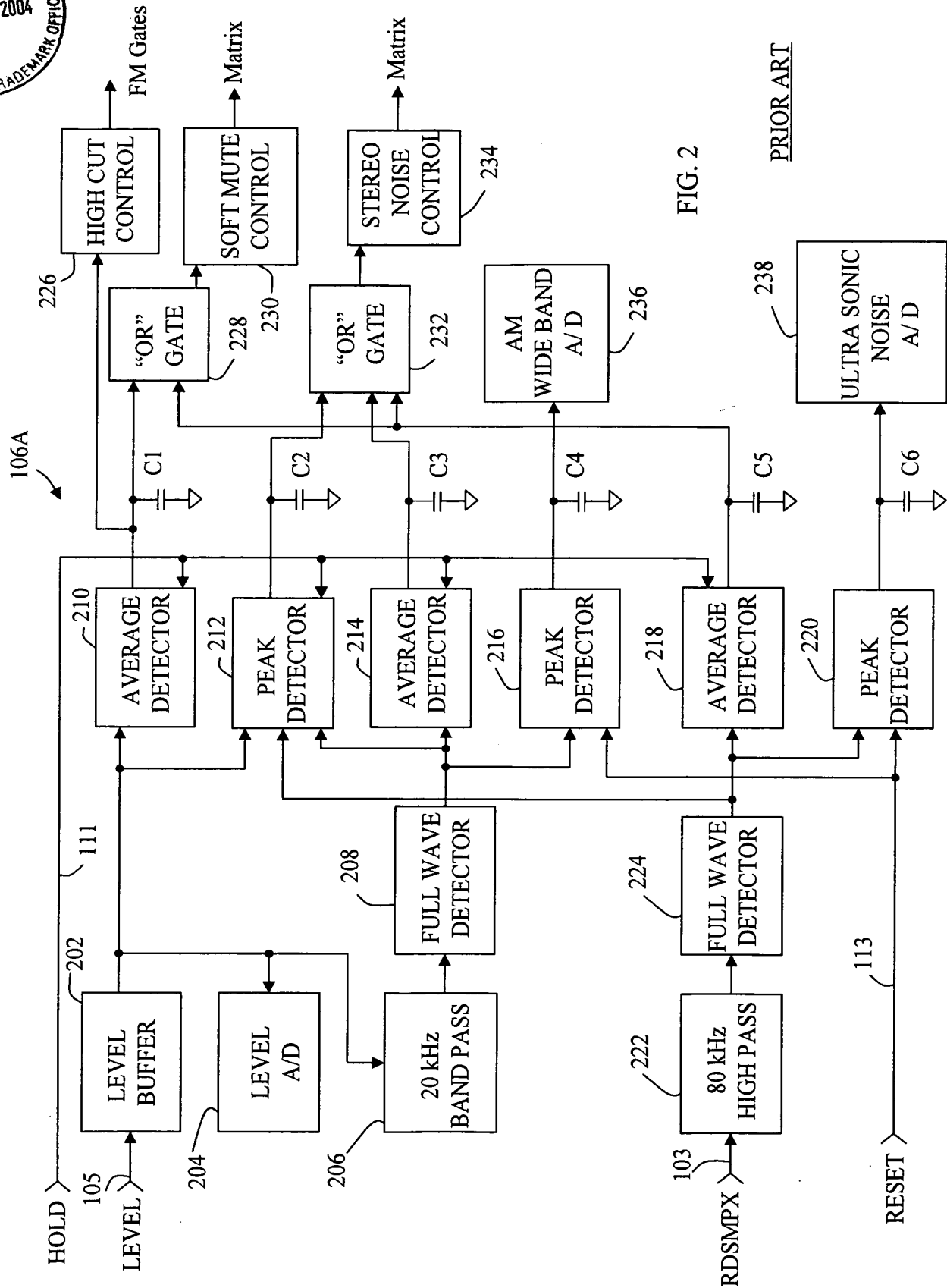


FIG. 2

PRIOR ART

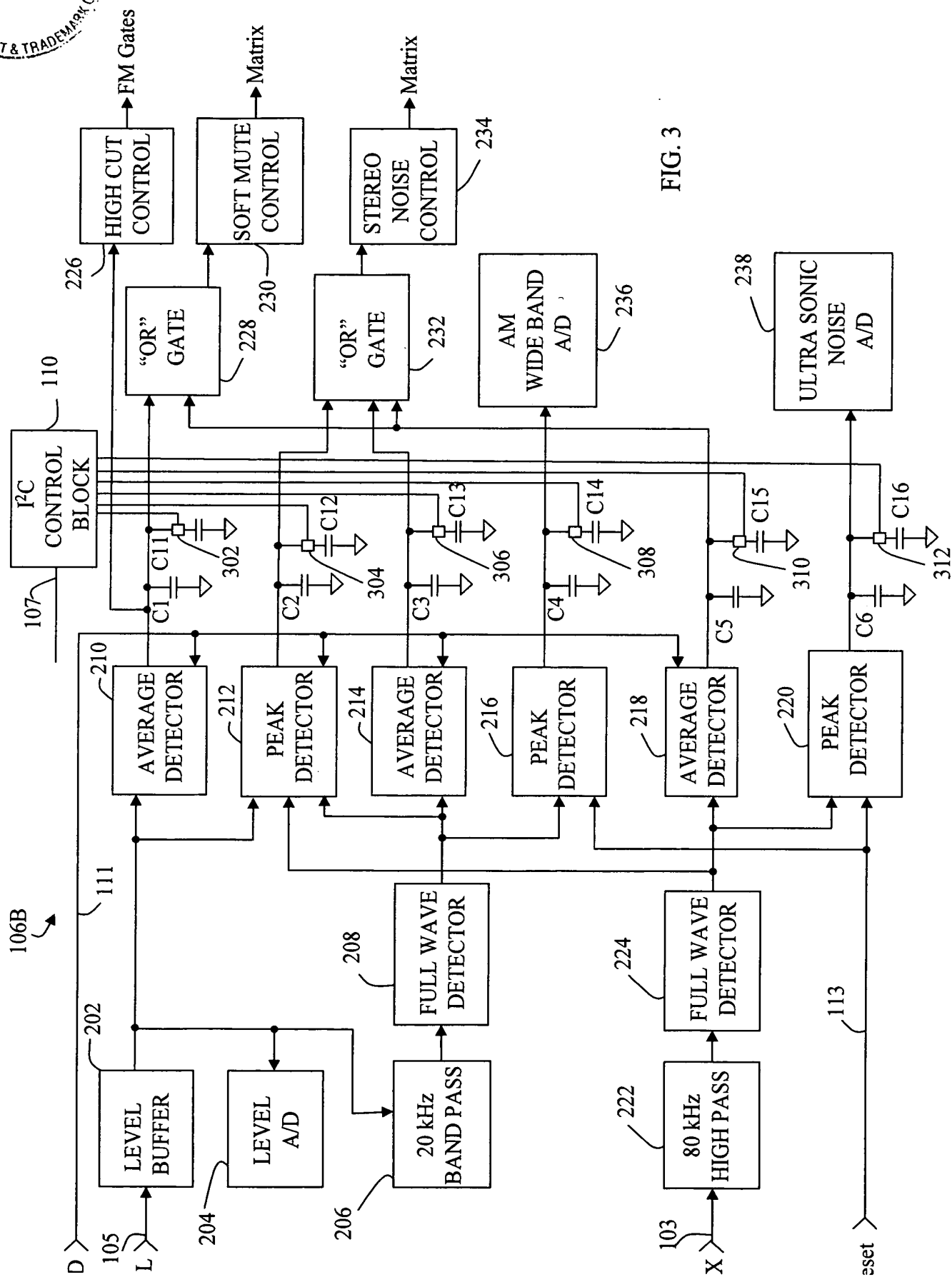


FIG. 3

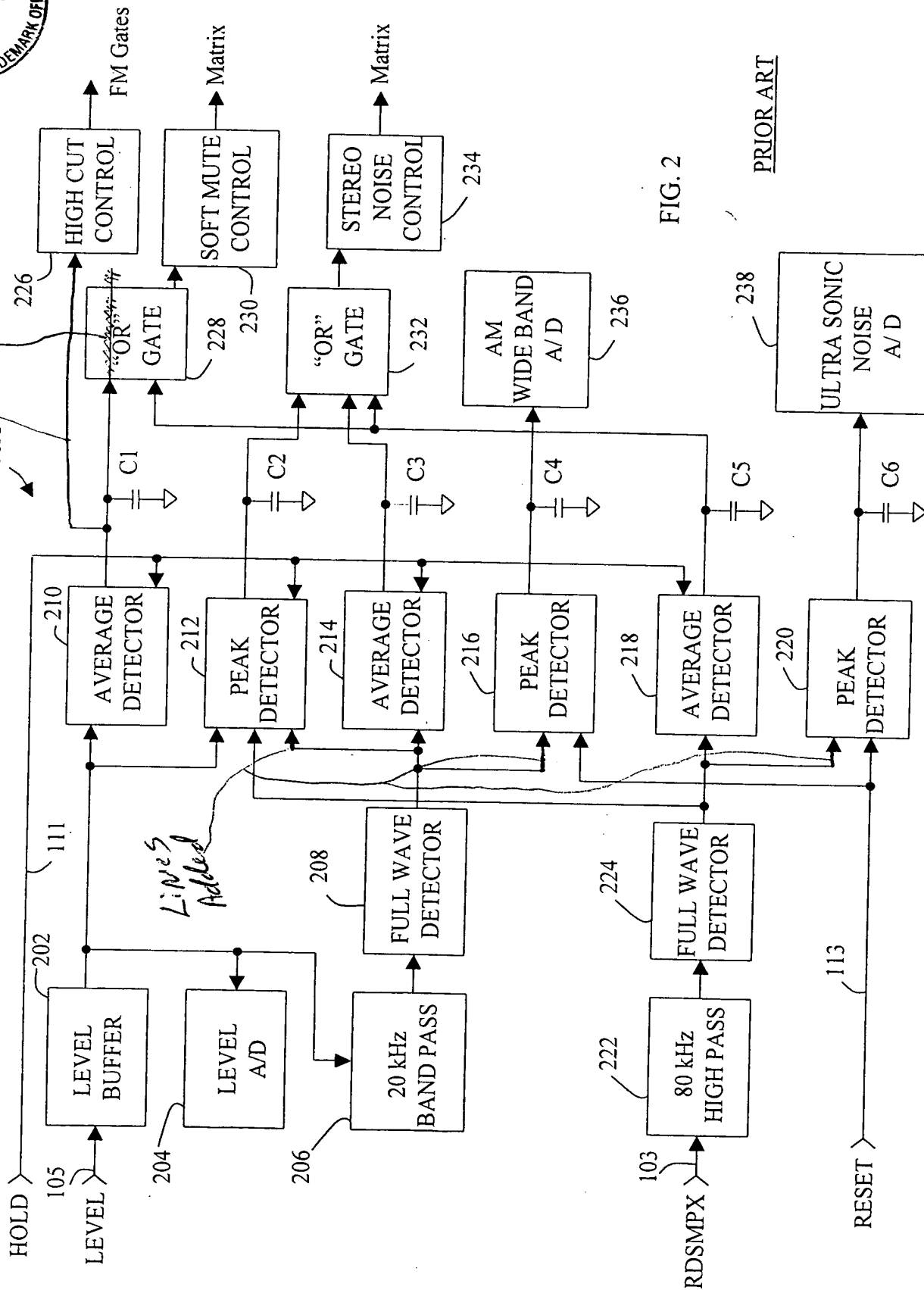


FIG. 2

PRIOR ART

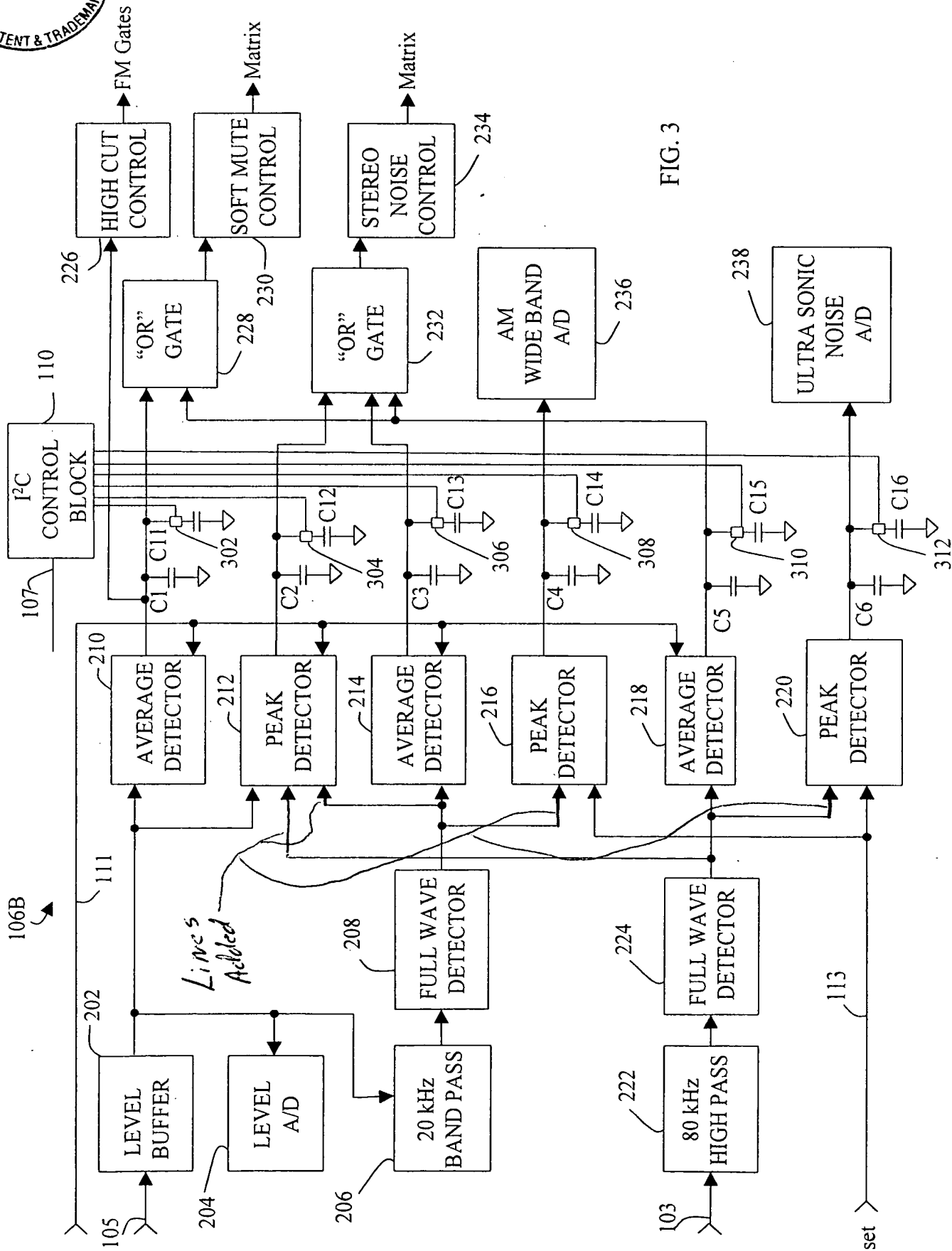
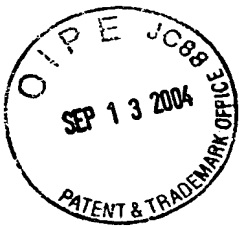


FIG. 3